

Claims

1. A one-way fluid valve, comprising:

a valve housing which includes a fluid supply section, including an entry port, and a delivery section, the housing including a fluid chamber which receives fluid entering through the supply section and which is in fluid communication with the delivery section for delivery of fluid out of the valve;

a poppet member positioned within the fluid chamber and free to move within the fluid chamber during operation of the valve, the poppet including a seating surface portion and a rim portion which includes passages therethrough which permit flow of fluid through the poppet member;

a delivery poppet seat defined within the fluid chamber, which the rim portion of the poppet contacts during forward flow of fluid through the valve; and

a supply poppet seat defined within the fluid chamber which the seating surface portion of the poppet contacts to minimize backflow of fluid through the valve during backflow of fluid into the fluid chamber.

2. The valve of claim 1, wherein the delivery poppet seat and the supply poppet seat are defined at opposite ends of the fluid chamber.

3. The valve of claim 1, wherein the seating surface of the poppet is conical.

4. The valve of claim 1, wherein the openings in the rim portion extend radially through the rim portion of the poppet into an open interior portion of the poppet.

5. The valve of claim 1, wherein the supply poppet seat comprises a softer material than the material comprising the poppet, such that the supply poppet seat deforms to accommodate irregularities in the seating surface portion of the poppet.

6. The valve of claim 1, wherein the supply poppet seat includes a sharp circumferential edge for fluid-flow limiting contact with the seating surface portion of the poppet.

7. The valve of claim 1, wherein the poppet member has a sufficiently low inertia that it is able to move rapidly back and forth within the fluid chamber, in response to cyclical changes in fluid pressure at the fluid supply and delivery sections.

8. The valve of claim 1, wherein the fluid chamber and the poppet member are so configured and arranged that reversing the poppet member within the chamber results in fluid flow through the valve in an opposing direction.

9. The valve of claim 1, wherein the fluid supply section includes a tube and the delivery section includes a threaded portion.

10. The valve of claim 1, wherein the valve housing includes a compression fitting and a tube which supplies fluid to the fluid chamber.